

**MS 1: DIESEL EQUIPMENT IDLING ORDINANCE****Background**

This control measure would reduce emissions from the idling of diesel equipment through the voluntary adoption and enforcement of a model ordinance by local government agencies. Reducing diesel equipment idling will primarily reduce emissions of NO<sub>x</sub>, particulate matter and toxic air contaminants. The measure would limit the amount of time operators of diesel equipment, including heavy-duty trucks, buses and construction equipment, idle their engines. This measure would reduce emissions from heavy-duty trucks at warehouse/distribution centers, port terminals, truck stops and rest areas. This measure would also reduce emissions from idling buses and heavy-duty diesel construction equipment. Diesel equipment idling for extended periods of time can produce localized high concentrations of emissions that affect the health of the operators and the neighboring communities. This measure would encourage limiting diesel equipment idling, for example to no more than 5 minutes of continuous operation.

**Regulatory History**

Anti-idling legislation has been enacted in at least 18 states across the country with some legislation targeting specific urban areas and others with statewide restrictions. The majority of the restrictions limit idling to 5 minutes. In December 2002, the ARB adopted its first anti-idling, airborne toxic control measure (ATCM) that would limit school bus idling at or near schools<sup>1</sup>. That ATCM requires a driver of a school bus, urban bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart it no more than 30 seconds before departing. Sections 40720 and 40720.5 of the California Health and Safety Code require coastal port authorities to limit truck idling at certain marine terminals to no longer than 30 minutes. The District has responsibility of enforcing this requirement at ports in the Bay Area. The ARB has voluntary incentive and demonstration programs to reduce idling, such as the Carl Moyer Program, that promotes the introduction of auxiliary power units as an idle reduction device for heavy-duty vehicles. Placer County APCD has adopted regulations limiting idling to 5 minutes for diesel-powered trucks with a GVW of 26,000 lbs and off-road diesel-powered equipment rated at 75 horsepower or greater. The California Air Resources Board is currently considering the adoption of a heavy-duty vehicle idling emission reduction requirement.

**Emissions Subject to Control**

This control measure would potentially apply to all diesel-fueled medium and heavy heavy-duty trucks, heavy-duty urban buses and preliminary estimates of construction equipment rated at 75 horsepower or greater operating in the District. Preliminary estimates of the projected baseline ROG, NO<sub>x</sub> and PM emissions for vehicles and equipment subject to control are provided in the table below.

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<sup>1</sup> Title 13, California Code of Regulations, section 2480.

**Emissions Subject to Control (Tons/Day) - Preliminary<sup>2</sup>**

	ROG		NO <sub>x</sub>		PM	
	2005	2010	2005	2010	2005	2010
Medium Heavy Duty Diesel Trucks	0.04	0.04	1.36	1.03	0.04	0.04
Heavy Heavy Duty Diesel Trucks	0.18	0.14	3.90	2.85	0.09	0.07
Heavy Duty Diesel Urban Buses	0.04	0.04	0.79	0.81	0.02	0.02
School Buses	0.01	0.01	0.13	0.15	0.00	0.01
Off-Road Construction Equipment	0.40	0.28	3.61	2.78	0.25	0.20
<b>Total</b>	<b>0.67</b>	<b>0.51</b>	<b>9.79</b>	<b>7.62</b>	<b>0.40</b>	<b>0.32</b>

**Proposed Method of Control**

The District would develop a model diesel equipment idling ordinance and would encourage cities and counties to adopt it locally. Local governments choosing to adopt the ordinance would be responsible for enforcement. This measure allows the use of alternative idle reduction devices such as automatic stop-start systems. Operators of diesel equipment without idle reduction devices would need to manually turn off their equipment. Diesel engine operators would not be subject to idling limitations under specified conditions in which idling would be necessary to accomplish the work for which the vehicle/equipment is designed. Compliance with this measure generally would be carried out by peace officers. General idling would be limited to 5 minutes per location for all applicable diesel equipment. Trucks with sleeper berths would only be allowed to idle for more than 5 minutes if an alternative means of providing power and heating or cooling to the berth were not available and the sleeping berth is in use. Devices such as fuel-fired heaters, auxiliary power units, and power inverter/chargers for use with batteries and grid-supplied electricity could be used to provide heating and air conditioning at truck stops for truck cab comfort. Outreach to inform truck and bus operators could be carried out with signage at commercial fueling stations, Department of Motor Vehicles offices, transit stations, depots, truck stops and gateways to the District. Compliance by construction contractors could be promoted through informational materials provided by local governments, license renewals and/or mailings.

**Emission Reductions Expected**

The use of alternative idle reduction devices/strategies, in lieu of operating the heavy-duty diesel engine at idle, will result in significant NO<sub>x</sub> reductions. Reductions in ROG, PM, carbon monoxide and carbon dioxide are also expected, but to a lesser extent. The fleet average cost-effectiveness of this proposal is less than \$500 per ton of NO<sub>x</sub> plus ROG reduced.<sup>3</sup> Estimated emission reductions from this measure are presented in the following table.

<sup>2</sup> Emissions are from ARB database and are an annual average of grown and controlled emissions.

<sup>3</sup> ARB's Staff Report: Initial Statement of Reasons, Public Hearing to Consider Adoption of Heavy-Duty Vehicle Idling Emission Reduction Requirement, pg. 25.

**Emissions Reductions Expected (Tons/Day) -Preliminary<sup>4</sup>**

	<b>ROG</b>		<b>NO<sub>x</sub></b>		<b>PM</b>	
	2005	2010	2005	2010	2005	2010
Medium Heavy Duty Diesel Trucks	0.01	0.01	0.27	0.21	0.01	0.01
Heavy Heavy Duty Diesel Trucks	0.04	0.03	0.78	0.57	0.02	0.01
Heavy Duty Diesel Urban Buses	0.01	0.01	0.16	0.16	0.00	0.00
School Buses	0.00	0.00	0.03	0.03	0.00	0.00
Off-Road Construction Equipment	0.08	0.06	0.72	0.56	0.05	0.04
<b>Total</b>	<b>0.13</b>	<b>0.10</b>	<b>1.96</b>	<b>1.52</b>	<b>0.08</b>	<b>0.06</b>

**Cost of Controls**

This measure could save up to \$1,600 in fuel costs and \$2,000 in maintenance costs annually per heavy-duty truck.<sup>5</sup> Idle shutdown systems are a standard feature on current electronically controlled on-road heavy-duty engines but would need to be reprogrammed to shut the engine down after 5 minutes. Either engine manufacturers or vehicle owners would need to reset the idle shutdown time. The cost incurred to reset the idle shutdown time is not significant. There would be no cost to operators of vehicles or equipment that do not have idle shutdown systems and would therefore need to manually turn off their equipment.

**Other Impacts**

This measure would also reduce:

- Emissions of diesel particulate matter, which the California Air Resources Board has identified as a toxic air contaminant,
- Consumption of diesel fuel,
- Emissions of carbon dioxide, a global warming gas, and
- Noise and odor impacts to sensitive receptors near warehouses and distribution centers.

<sup>4</sup> Emission reductions are based on ARB's Staff Report: Initial Statement of Reasons, Public Hearing to Consider Adoption of Heavy-Duty Vehicle Idling Emission Reduction Requirement, December 5, 2003, that estimates 5% of emissions are from idling. Emission reductions in this table assume 1% emission reductions due to the voluntary nature of this measure and enforceability.

<sup>5</sup> Department of Energy, Clean Cities report <http://www.ccities.doe.gov/anti-idling.html>

## MS 2: GREEN CONTRACTING

### Background

This measure would entail development and promotion of a model ordinance for local government agencies to use in amending local codes that govern public agency contracting. Public agencies can play an important role in improving air quality by encouraging contractors to operate low-emission vehicles, purchase clean fuels, promote ridesharing programs and curtail polluting activities on Spare the Air days. By adopting and implementing Green Contracting Ordinances, public agencies can encourage contractors to operate their businesses in ways that benefit air quality.

### Regulatory History

The District does not have regulatory authority to require local government agencies to adopt Green Contracting Ordinances. Adopting Green Contracting Ordinances by public agencies would be strictly voluntary. The Sacramento Metropolitan Air Quality Management District and the Yolo-Solano and Placer County Air Pollution Control Districts have developed a Model Green Contracting Ordinance for use by local agencies in their jurisdictions.

### Emissions Subject to Control

This measure achieves emission reductions by encouraging contractors that do business with public agencies to increase the use of low-emission vehicles and equipment or implement other measures that reduce emissions, such as use of clean fuels or business practices supporting employee trip reduction. Emissions subject to control would include on road mobile sources and off road equipment operated by contractors that do business with public agencies, emissions from the employee commutes for these contractors, and emissions from activities discouraged on Spare the Air days, such as vehicle refueling, use of gasoline-powered lawn and garden equipment, and use of paints and solvents.

### Proposed Method of Control

The District will develop a model Green Contracting Ordinance and encourage voluntary adoption by local government agencies. Agencies may adopt the District's model ordinance or modify the ordinance prior to adoption. The District will encourage agencies adopting a Green Contracting Ordinance to promote the ordinance with businesses that may contract with the agency. In implementing the ordinance, the agency would give preferential consideration in awarding contracts to contractors that procure and operate low-emission vehicles, purchase clean fuels, and achieve low-emission fleet<sup>6</sup> status for off-road equipment and heavy-duty on-road fleets. Participating government agencies will also provide preferential consideration in awarding contracts to contractors that promote ridesharing programs and participate in the Spare the Air program. An agency would include contract bid language implementing the following contracting program requirements on contracts within the District:

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<sup>6</sup> "Low-Emission Fleet" means an off-road equipment fleet or an on-road heavy-duty vehicle fleet that meets the certified low-emission fleet average standards for nitrogen oxides (NOX) and fine particulate matter (PM<sub>2.5</sub>) to be established in an Appendix to a Model Green Contracting Ordinance.

- Contractor would submit to the local government agency a clean air plan for reducing air emissions. The plan may contain but would not be limited to emission reductions from on-going activities, such as low-emission fleet operations and ridesharing programs, and/or intermittent emission reductions, such as participation in the Spare the Air program. This plan would be submitted to and approved by the contracting agency prior to the final execution of the contract. This plan would detail the types of actions the contractor would take to reduce air quality impacts while working within the jurisdiction.
- A contractor may submit their low-emission fleet status as a qualifying plan. Achieving low-emission fleet status might be achieved by subcontracting to a registered low-emission fleet for the work or using approved alternative fuels or devices on non-compliant equipment.
- Bidders that provide ridesharing program components could include those elements in their submitted plan. These components may include membership in a transportation management association, having a designated employee transportation coordinator, or some other type of effective employee alternative commute program.
- The contractor submits an acceptable plan to curtail emission-producing activities on Spare the Air days.
- The contractor meets with local agency staff and discusses suitable emission reduction strategies and future plans.

**Emission Reductions Expected**

Emission reductions expected from this measure are very difficult to quantify. Reductions would be achieved by the ability of contractors that meet Green Contracting requirements to win contracts with local government agencies. The volume of work, emission characteristics of the low emission fleet, volume of clean fuel used, level of participation of employee commute programs and number of Spare the Air days would all be factors affecting the level of emission reductions achieved by this measure.

**Cost of Controls**

Contractors may incur costs by purchasing, maintaining and/or operating a low emission fleet, providing employees with alternative commute benefits, purchasing clean fuels or curtailing activities on Spare the Air days. However, if local agencies favor contractors with such programs, they could improve the competitiveness of contractors in winning contract awards. Local government agencies may have higher costs if they award contracts to contractors that have higher costs but are selected because they meet Green Contracting requirements.

**Other Impacts**

Increased use of fuel efficient vehicles and equipment, reduced vehicle trips, and other energy saving measures implemented based on green contracting provisions would reduce emissions of pollutants that contribute to global warming.

### MS 3: LOW-EMISSION VEHICLE INCENTIVES

#### Background

The purpose of this measure is to encourage the use of low-emission vehicles that have emissions that are significantly lower than the standards established for vehicles of similar make and model year. Low-emission vehicles typically have cleaner burning engines, fuels and/or exhaust treatment devices. The District funds low-emission vehicle projects through the Transportation Fund for Clean Air (TFCA), Carl Moyer Program and other funding sources. TFCA enabling legislation identifies “low-emission and zero-emission vehicle programs” as one of the project categories eligible for TFCA funding. The legislation further requires that to be eligible for funding, control measures such as low-emission vehicle programs, must also be included in the plans for attainment of state or federal ambient air quality standards, such as this Ozone Strategy. This measure clarifies the types of low-emission vehicle projects that would be eligible for TFCA funds and other District grant programs.

#### Regulatory History

To increase the use of low-emission vehicles, the District uses financial incentives. The District currently provides incentives to reduce mobile source emissions through the TFCA and Carl Moyer Programs. Section 44220 of the California Health and Safety Code allows the District to collect funds through a motor vehicle registration surcharge to carry out “low-emission and zero-emission” projects that are also contained in a State ambient air quality attainment plan, such as this Ozone Strategy. Chapter 9 of the California Health and Safety Code contains the enabling legislation for the Carl Moyer Program. The Carl Moyer Program provides funds on an incentive-basis for the incremental cost of cleaner-than-required on-road and off-road engines and equipment.

#### Emissions Subject to Control

This control measure would achieve emission reductions from low-emission vehicle programs that include all vehicle weights (i.e. light, medium and heavy-duty) and on-road and off-road sources. This control measure would allow TFCA funding of low-emission vehicles, engine repowers and retrofits, exhaust treatments, clean fuels or additives, and the infrastructure to supply alternative fuels. The projected ROG and NO<sub>x</sub> emissions subject to control are provided below.

<i>Emissions Subject to Control</i>		
<u>Year</u>	<u>ROG (TPD)</u>	<u>NO<sub>x</sub> (TPD)</u>
2003	163	305
2006	137	263
2009	115	223

#### Proposed Method of Control

This control measure is intended to increase the share of low-emission vehicles in the on-road and off-road fleet. TFCA funds and other District grant programs would be used to provide an incentive to:

- Purchase low- or zero-emission vehicles or engines,
- Engine repowers, retrofits and replacements,
- Exhaust treatments and add-on equipment,
- Clean fuels or additives, and
- Infrastructure to supply alternative fuels.

### **Emission Reductions Expected**

Emission reductions expected from this measure would be achieved by the incremental lower emissions from replacement of conventional vehicles, engines and fuels with low-emission vehicles, engines and fuels. Emission reductions would be limited by available TFCA and other District grant program funds, availability of vehicles and infrastructure, and the ability of projects to compete for the funds. In FY 02/03, TFCA funds were used to fund low-emission vehicle projects that achieved an estimated 230 tons of emission reductions (ROG, NOx and PM combined) over the life of the projects.<sup>1</sup> The average cost-effectiveness of these projects was approximately \$28,800/ton of emissions reduced. In FY 00/01, the Carl Moyer Program achieved a cost-effectiveness of less than \$2,000 per ton of NOx reduced.

<b>Emission Reductions</b>		
<u>Year</u>	<u>ROG (TPD, Summer)</u>	<u>NOx (TPD, Summer)</u>
2003	0.03	0.6
2006	0.03	0.6
2009	0.03	0.6

### **Cost of Controls**

The cost of this measure is dependent on many factors, such as the incremental cost of low-emission vehicles, engines, fuels and exhaust treatment devices compared to conventional vehicles, engines, fuels and exhaust treatment devices. In FY 02/03, approximately \$6.6 million in TFCA funds were used for projects identified under this control measure. In 2003, the Carl Moyer Program allocated \$1.8 million to projects identified under this control measure.

### **Other Impacts**

It would be necessary to minimize leaks and losses of natural gas during handling, as methane is 30 times more potent than CO<sub>2</sub> as a greenhouse gas. Increased use of natural gas and electric vehicles would reduce U.S. dependency on imported petroleum.

### **Suggested Measure Reference # 1, 3, 4, 7, 9, 11, 12, 13, 16**

<sup>1</sup> From TFCA Annual Report on FY 02/03 Allocations and Effectiveness.